DOCUMENT RESUME

ED 235 459 CS 007 189

AUTHOR Barr, Rebecca
TITLE A Sociological Approach to Classroom Instruction. Occasional Paper No. 6.
INSTITUTION National College of Education, Evanston, IL. Reading Center.
SPONS AGENCY Spencer Foundation, Chicago, Ill.
PUB DATE Jun 83
NOTE 18p.; Paper presented at the Annual Meeting of the American Educational Research Association (Montreal, Canada, April 11-15, 1983).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Basal Reading; *Classroom Environment; Classroom Research; Classroom Techniques; Comparative Analysis; Difficulty Level; Elementary Education; Outcomes of Education; Reading Ability; Reading Achievement; *Reading Instruction; *Reading Materials; Reading Research; *Teacher Effectiveness; *Teaching Methods; Textbook Content; *Time Factors (Learning)

ABSTRACT

To examine how classroom conditions such as students' mean aptitude, materials used, and instructional time influence the amount of reading material covered, 12 first grade classrooms were each observed for 12 days over a 36-week period. Students' reading readiness and word recognition skills were tested prior to observation while group mean aptitude, reading group size, and number of phonics concepts and new words introduced in the basal reading series were recorded during the study. Time spent on basal instruction, teacher-supervised reading group activities, and phonics work was determined by direct observation. Data corroborate earlier findings that the amount of material covered during a reading class--a significant predictor of reading achievement--was influenced by two main sets of conditions: characteristics of the group, particularly its mean aptitude, and conditions of the classroom, especially difficulty of materials and associated time conditions. (MM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED235459

THE READING CENTER

A SOCIOLOGICAL APPROACH
TO CLASSROOM INSTRUCTION

Rebecca Barr
University of Chicago
and
National College of Education

June 1983

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Rebecca Barr

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CS007189

Occasional paper No. 6

NATIONAL COLLEGE OF EDUCATION

A Sociological Approach to Classroom Instruction

Rebecca Barr

University of Chicago

and

National College of Education

Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada, April, 1983. The work reported was generously supported by the Spencer Foundation, and that support is gratefully acknowledged here.

Most studies of classroom instruction do not examine how instruction works but rather how well various instructional conditions predict learning. While sociologists and economists typically ask how such resources as teacher training and experience, and per pupil expenditure, along with student characteristics are associated with achievement, psychologists and educational researchers examine how teaching behavior and aspects of time use are associated with learning. But the basic question is the same: which school and instructional conditions are associated with learning? As a consequence of using this perspective, little attention has been directed toward how various conditions of instruction fit together to form an effective program. That is, the focus has been on the linkages between instructional conditions and learning rather than on the linkages among instructional conditions.

Recent work that I have undertaken with Robert Dreeben attempts to come to terms with the problem of how we should think about the workings of schools and classrooms. Several years ago at AERA in Boston we presented a formulation of classroom instruction based on our reanalysis of an existing data set concerning first grade reading instruction. We have just completed a replication and elaboration of that study in 12 first grade classes. Today I will compare the results from this work with those from the earlier study.

In our forthcoming book, How Schools Work, based in part on the earlier first grade study, we argue that work in schools is

characterized by a division of labor according to level of school organization. Work at the district level, for example, involves recruiting and hiring personnel, procuring material resources, acquiring and maintaining buildings, establishing yearly and daily time schedules, and the like. Some activities at the school level include assigning teachers and students to classes, preparing the school time schedule, allocating materials, coordinating instruction, and assessing learning. Instruction itself, however, is the province of teachers in classrooms. Although levels of school organization are distinguished by different sorts of activity, they are also interconnected in that the problems solved at one level bear directly on the work of contiguous levels. Most obviously, the work of teachers is influenced by decisions made by district and school personnel concerning the scheduling of time, the selection of materials, and the composition of classes.

With respect to classroom instruction, we argue that the first activity of teachers in preparing for instruction is to consider the class, its distributive properties, and to determine an appropriate social arrangement for instruction. This decision has implications for instructional design. For if teachers group children on the basis of ability, they solve to some extent the problem of matching the difficulty of materials with the aptitudes of children. But this solution makes teachers less available to direct the work of pupils who are not in the immediate subgroup they are teaching. Correspondingly, the solution of total class

instruction may solve the problem of teacher availability, but because it typically involves the use of a single set of materials, the work is usually inappropriate for a number of children.

With respect to the development of instruction, we propose that instruction is responsive to the characteristic of the groups for which it is designed; in particular, we suggest that the mean aptitude of a group will influence the amount and level of work that is accomplished. As an index of work accomplished, we have selected "content coverage;" that is, the content children are exposed to during group instruction. We further argue that other conditions of the class, such as the difficulty of the curricular materials, the time made available for various activities, and the teacher's supervision, will also influence the coverage of material. What we have here is a formulation of how classroom conditions fit together into a productive process. Please note that we have not used learning as the outcome of group level activities. Rather an instructional condition, the coverage of content is the group level outcome. We view content coverage as a pivotal condition; it is on the one hand a dependent variable influenced by and responsive to class and group conditions, and on the other it is the most significant influence upon learning.

To test this formulation we examined the influence of seven instructional conditions on content coverage in our previous research as shown in Tables 5 - 8. For basal instruction, we

found that content coverage was most closely associated with the mean aptitude of the group, and that the difficulty of the basal material also contributed significantly to content coverage. We also discovered collinearity between instructional time allocated to basal activities and the difficulty of the materials; accordingly, basal material difficulty in fact represents an instructional package that includes time as well as material characteristics. The results were similar for phonics instruction except that material difficulty (and its associated time condition) predominated over group mean aptitude in influencing the coverage of phonics concepts.

Before I consider the results from our current study, let me describe the instructional conditions that we have investigated in more detail and explain how the conditions were measured. In our current research completed last year, we observed instruction in 12 first grade classrooms for a full day approximately every three weeks for a total of 12 observations. Social arrangements and instructional activities were recorded on a minute-by-minute basis. Audio tape recordings were used to check the accuracy of the written records.

Children were tested at the beginning of the school year to determine readiness for learning words through standardized instructional sessions (Word Learning Tasks, Barr and Kibby, 1981). This was the same measure used in our earlier study. Nevertheless, some children had already begun to read, so that we

also measured their word recognition skill by using the Wide Range Achievement Test. Thus, reading aptitude in the current study is based upon the combination of the word learning and word recognition scores. Group mean aptitude shown in Table 1 for basal instruction is derived from the aptitude of individual group members averaged for groups across the 12 observations. Group size is the average size of a group for the 12 observations. Basal group size in the current study, averaging near seven members, is somewhat smaller than in our previous research. Similarly, the average size of the class remainder -- that is, the rest of the class that a teacher must also supervise when she is working with a small reading group -- is also smaller in the current research than in the earlier study. These differences reflect the fact that more classes of small size were included in the current research.

The reading materials used in each class were studied to determine the number of new words and the number of phonics concepts introduced in the materials corresponding to the pre-primer, primer, and first grade readers. Because the indices of the two investigations were derived in the same way, comparison of the indices of basal material difficulty from the 1969-70 and the 1981-82 studies shown in Tables 1 and 5 reveals that reading materials have increased dramatically in difficulty during the past decade. The average number of words has increased from 334 to 562, and the average number of phonics concepts from 57 to 76.

Correspondingly, the content actually covered by groups has increased during the same period from 199 words on the average to 478, and from 44 phonics concepts to 69. Not only have reading materials become much more difficult, but the proportion of the materials covered by groups has increased in our samples, from 60 to 85 percent on the average for words and from 77 to 91 percent for phonics concepts. One wonders when a point will be reached that materials become so difficult they outstrip the learning abilities of children. Perhaps the increased difficulty of materials led to greater kindergarten emphasis on pre-reading skills and the high degree of readiness we found in our current study.

The three remaining measures of instruction were derived from our observational evidence. The first, basal instructional time, refers to the time that children spent on tasks involving word and contextual reading during seatwork, total class and small group instruction. By contrast, basal supervision time refers to time during which small group basal activities were directly supervised by the teacher. The phonics time scores are similar in derivation. These measures are not comparable to the time measures of our previous study. They refer to the time a teacher actually made available to groups for undertaking specific reading activities, whereas the previous time measures were estimates based upon teacher reports, representing scheduled time not all of which was actually used for instruction. As shown by the

correlation matrices in Tables 1 and 3, supervised time seems to be more important for phonics skill instruction than for basal story reading. It is more closely associated with material difficulty and with phonics coverage than is total time, whereas the opposite is true for basal instruction. A similar but less pronounced pattern of relationships was revealed in our previous study as shown in Tables 5 and 7. We speculate that when a set of concepts receives relatively little instruction under teacher supervision, then supervision becomes a more significant predictor of instructional effectiveness. However, when a more substantial proportion of supervised time is focused on an activity, such as in the case of basal story reading, then the minimal level necessary may be exceeded, and thus, more supervised time beyond the threshold may not predict coverage.

In the earlier study we had no direct evidence on teacher competence and represented teacher effectiveness simply by first grade teaching experience. In the current research we characterize teacher effectiveness as the proportion of small group reading time that is devoted to instruction. Thus, a teacher with a coefficient of .90 manages to teach 90 percent of the time, whereas one with a coefficient of .65 spends only about two-thirds of the time on instructional activities. Obviously, some non-instructional time for transitions and procedures is necessary, but non-instructional time increases when a teacher is not prepared and children must wait, when reprimands are many,

when transitions are long, and when procedures are not well thought out.

Now we can restate our formulation in more precise terms. We argue that the instruction a teacher designs is responsive to characteristics of the instructional group, in particular its mean aptitude. Further, we expect that the conditions of the class -- its instructional materials and time for instruction, and perhaps, teacher supervision and efficiency -- will also influence coverage. Thus, the instruction a teacher designs is seen as being influenced by two major sets of conditions: characteristics of the group, particularly its mean aptitude, and conditions of the classroom, particularly its materials and instructional time.

Table 1 shows, similar to our previous findings, that group mean aptitude is significantly associated with coverage, while group size is not. From among the class and instructional conditions, two bear substantial relationships with coverage, basal material difficulty and basal instructional time. However, as indicated by the coefficient of .68, the latter two conditions are collinear. That is, when more difficult basal materials are used in classes, teachers spend more time doing basal reading activities. This finding replicates our prior study.

We used a step-down regression analysis to establish how conditions interact to influence coverage. Whereas in our previous analysis group mean aptitude entered the equation first, in this one, material difficulty enters first because of its

slightly greater correlation with coverage. In the second step, group mean aptitude as well as material difficulty are included, and the beta coefficients reflect the relative contribution of the two conditions. Jointly, they account for 77 percent of the variance in basal word coverage. Although one might expect basal instructional time to enter the equation next, it does not because of its collinearity with basal material difficulty. Thus, in interpreting these results it must be remembered that material difficulty represents part of an instructional package that includes instructional time as well as material difficulty. The third step indicates that basal supervision time contributes to coverage over and above what is accounted for by the combination of material difficulty and group mean aptitude. As can be seen, the inclusion of other conditions adds little to the prediction of coverage.

The results from phonics instruction shown in Tables 3 and 4 are similar in most respects to those from basal instruction. One difference, however, is that phonics supervision time and not instructional time in general is closely associated with the difficulty of phonics material, and it is supervision time that is also more closely associated with coverage. Nevertheless, the step-down regression analysis is remarkably similar not only to that for basal instruction but also to that found in the previous study as shown in Table 8.

What do we make of this set of findings? The evidence is

remarkably consistent; both studies show that the difficulty of material (along with associated time conditions) and the mean aptitude of groups influence the content that children cover during reading instruction. While the relative contribution of each of these conditions varies somewhat from analysis to analysis, the main story is the same. Accordingly, the evidence lends support to the centrality of the conditions that we have selected and our formulation of their interconnections.

The use of content coverage as a pivotal condition in our research could not be defended if it were not closely associated with learning. Similar to the results of our previous study, basal word coverage accounts for 83 percent of the variance in word learning and for 49 percent of the variance in a general measure of reading comprehension. Phonics coverage accounts for 71 percent of the variance in phonics learning and for 36 percent of the variance in reading comprehension. Hence, content coverage is a significant predictor of reading achievement and therefore, it is important to understand its determinants.

		1	2	3	4	5	6	7	8
1	Group Mean Aptitude								
2	Basal Group Size	0.22							
3	Basal Material Difficulty	0.51	-0.32						
4	Basal Instructional Time	0.38	-0.17	0.68					
5	Basal Supervision Time	-0.14	0.22	0.18	0.19				
6	Teacher Efficiency	-0.23	-0.32	0.12	-0.08	0.53			
7	Size of Class Remainder	-0.19	-0.09	-0.41	-0.63	-0.31	-0.28		
8	Basal Word Coverage	0.76	-0.02	0.77	0.59	0.24	0.13	-0.34	
	Mean	23.7	6.8	562.3	47.1	13.3	0.8	16.8	478.3
	Standard Deviation	11.3	2.5	127.1	10.9	4.2	0.1	5.6	206.7

Levels of significance: 0.05: r>0.35; 0.01: r>0.45

Table 1 Correlation Matrix, Means, and Standard Deviations of Group Characteristics, Instructional Conditions, and Basal Word Coverage (n=33).

1981-82

Independent Variables	Basal Word Coverage						
	I	II	III	IV	V	VI	VII
1 Basal Material Difficulty	.77*	.52*	.44*	.42*	.35*	.32*	.36*
2 Group Mean Aptitude		.49*	.57*	.60*	.60*	.61*	.56*
3 Basal Supervision Time			.24*	.19*	.17	.17	.10
4 Teacher Efficiency				.11	.14	.20	.27
5 Basal Instructional Time					.10	.21	.27
6 Size of Class Remainder						.14	.20
7 Group Size							.10
Multiple R	.77	.88	.91	.91	.92	.92	.92
R^2 (percent)	59	77	82	83	84	85	85
R^2 Change (percent)	59	18	5	1	1	1	0
Adjusted R^2 (percent)	58	76	81	81	81	81	81

* Unstandardized beta coefficient is 2 or more times as large as the standard error

Table 2 Beta Coefficients Showing the Contribution of Instructional Conditions to Basal Word Coverage (n=33).

1981-82

		1	2	3	4	5	6	7	8
1	Group Mean Aptitude								
2	Phonics Group Size	0.22							
3	Phonics Material Difficulty	0.32	-0.29						
4	Phonics Instructional Time	-0.13	-0.16	0.11					
5	Phonics Supervision Time	0.09	-0.30	0.78	0.55				
6	Teacher Efficiency	-0.23	-0.32	0.30	-0.06	0.40			
7	Size of Class Remainder	-0.19	-0.09	-0.72	-0.19	-0.55	-0.28		
8	Phonics Concept Coverage	0.61	-0.09	0.78	0.09	0.64	0.24	-0.55	
	Mean	23.7	6.8	76.3	18.8	4.6	0.8	16.8	68.5
	Standard Deviation	11.3	2.5	15.3	6.1	3.4	0.1	5.6	21.1

Levels of significance: 0.05: r>0.35; 0.01: r>0.45

Table 3 Correlation Matrix, Means, and Standard Deviations of Group Characteristics, Instructional Conditions, and Phonics Concepts Learned (n=33).

1981-82

Independent Variables		Phonics Concept Coverage					
		I	II	III	IV	V	VI
1	Phonics Material Difficulty	.78*	.64*	.40*	.37*	.39*	.37
2	Group Mean Aptitude		.41*	.46*	.50*	.49*	.49*
3	Phonics Supervision Time			.29*	.25	.25	.28
4	Teacher Efficiency				.14	.15	.14
5	Group Size					.04	.04
6	Phonics Instructional Time						-.02
7	Size of Class Remainder[a]						
	Multiple R	.78	.87	.88	.89	.89	.89
	R^2 (percent)	60	75	78	80	80	80
	R^2 Change (percent)	60	15	3	2	0	0
	Adjusted R^2 (percent)	59	73	76	77	76	75

[a] For this condition, the tolerance was too low for the variable to enter the regression equation.

* Unstandardized beta coefficient is 2 or more times as large as the standard error.

Table 4 Beta Coefficients Showing the Contribution of Instructional Conditions to Phonics Concept Coverage (n=33).

1981-82

		1	2	3	4	5	6	7	8
1	Group Mean Aptitude								
2	Basal Group Size	.43							
3	Basal Material Difficulty	.02	-.20						
4	Basal Instructional Time	.27	.01	.61					
5	Basal Supervision Time	.07	-.22	.04	.34				
6	Grade 1 Teaching Experience	-.10	-.04	-.26	-.01	.35			
7	Size of Class Remainder	-.49	-.64	-.47	-.51	.16	.40		
8	Basal Word Coverage	.68	.37	.39	.42	.11	.05	-.55	
	Mean	34.39	10.41	333.67	43.37	33.14	3.79	20.05	198.40
	Standard Deviation	15.70	5.93	14.87	14.75	11.13	5.44	7.25	98.11

Levels of Significance: 0.05: r > 0.30; 0.01: r > 0.39.

Table 5 Correlation Matrix, Means, and Standard Deviations of Group Characteristics, Instructional Conditions, and Basal Word Coverage (n=43).

1969-70

Independent Variables	Basal Word Coverage						
	I	II	III	IV	V	VI	VII
1 Group Mean Aptitude	.69*	.68*	.70*	.61*	.62*	.62*	.63*
2 Basal Material Difficulty		.40*	.46*	.51*	.54*	.54*	.56*
3 Grade 1 Teaching Experience			.24*	.25*	.26*	.25*	.23*
4 Basal Group Size				.21*	.22*	.22*	.24*
5 Basal Instructional Time					-.07	-.08	-.07
6 Size of Class Remainder						.03	.03
7 Basal Supervision Time							.06
Multiple R	.68	.78	.81	.83	.83	.83	.83
R^2 (percent)	47	61	66	69	69	70	70
R^2 Change (percent)	47	14	5	3	0	1	0
Adjusted R^2 (percent)	45	59	63	66	65	64	64

* Unstandardized beta coefficient is 2 or more times as large as the standard error.

Table 6 Beta Coefficients Showing The Contribution of Instructional Conditions to Basal Word Learning (n=43).

1969-70

		1	2	3	4	5	6	7	8
1	Group Mean Aptitude								
2	Phonics Group Size	.18							
3	Phonics Material Difficulty	.00	-.30						
4	Phonics Instructional Time	-.07	-.29	.87					
5	Phonics Supervision Time	.12	-.10	.66	.74				
6	Grade 1 Teaching Experience	-.03	.41	-.22	-.08	-.09			
7	Size of Class Remainder	-.27	-.81	.04	.29	.11	-.16		
8	Phonics Coverage	.43	.06	.77	.65	.56	-.00	-.25	
	Mean	35.97	13.21	56.74	30.62	8.24	2.59	16.15	43.79
	Standard Deviation	16.09	1.93	10.03	11.81	8.98	3.66	9.09	17.66

Levels of Significance: 0.05: r > 0.33; 0.01: r > 0.45.

Table 7 Correlation Matrix, Means, and Standard Deviations of Group Characteristics, Instructional Conditions, and Phonics Coverage (n=34).

1969-70

Instructional Conditions	Phonics Coverage						
	I	II	III	IV	V	VI	VII
Phonics Material Difficulty	.77*	.77*	.84*	.85*	.88*	.84*	.73*
Phonics Group Mean Aptitude		.43*	.39*	.40*	.40*	.41*	.40*
Phonics Group Size			.24*	.20*	.20*	.21*	.11
Grade 1 Teaching Experience				.12	.12	.11	.11
Phonics Supervision Time					-.04	-.07	-.06
Phonics Instruction Time						.07	.16
Size of Class Remainder							-.11
R	.77	.88	.91	.92	.92	.92	.92
R^2 (percent)	59	78	83	84	84	84	84
R^2 Change (percent)	59	19	5	1	0	0	0
Adjusted R^2	58	76	81	82	81	81	80

* Unstandardized beta coefficient is 2 or more times as large as the standard error

Table 8 Beta Coefficients Showing The Contribution of Instructional Conditions to Phonics Coverage (n=34).

1969-70

THE READING CENTER

NATIONAL COLLEGE OF EDUCATION

OCCASIONAL PAPERS

No. 1: Blachowicz, C.L.Z. Reading and remembering: a constructivist perspective on reading comprehension and its disorders, December, 1982.

No. 2: Morris, D. Assessing word awareness in the beginning reader: an alternative strategy, Winter, 1980.

No. 3: Ogle, D. Collaboration for school improvement: a case study of a school district and college implementing change, May, 1983.

No. 4: Johnson, B., Schneider, M. & German, D. The learning disability and reading debate: Survey of practitioners' populations and remedial methods, May, 1983.

No. 5: Johnson, B., Christensen, J. & McCarthy, L. A look at exemplary teachers during first grade reading instruction, May, 1983.